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A N
E S S A Y
UPON THE
BRITISH FISHERIES:

WHEREIN

THE ERRORS OF THE SYSTEM ON WHICH THEY
ARE AT PRESENT CONDUCTED, ARE
POINTED OUT;

A BETTER SYSTEM IS RECOMMENDED;

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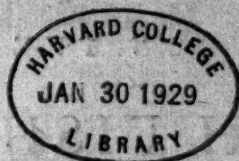
SUNDRY EXPERIMENTS, TENDING TO IMPROVE-
MENT, ARE PROPOSED.

THE WHOLE IS HUMBLY SUBMITTED TO THE CONSIDERATION OF THE PUBLIC.

By a CALEDONIAN FISHER.

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TO THE HONOURABLE,
The BOARD of TRUSTEES
FOR
FISHERIES, MANUFACTURES,
and **IMPROVEMENTS,**
IN SCOTLAND,

THIS ESSAY
IS HUMBLY INSCRIBED,
BY
THEIR MOST OBEDIENT,
AND MOST HUMBLE SERVANT,
JOHN ROSE.

TO THE HONOURABLE

THE BOARD OF TRUSTEES

FOR

THEIR MANUFACTURES

AND IMPROVEMENTS

IN SCOTLAND

THIS ESSAY

IS NOW IN PRESS

BY

THEIR HONOURABLE MEMBER

AND SECRETARY

JOHN ROSE

ESSAY

UPON THE

BRITISH FISHERIES.

IT cannot fail to be matter of sincere pleasure to every friend of his country, to find that the FISHERIES have attracted the notice of sundry *truly* patriotic gentlemen, who, it is said, are collecting information to be laid before Parliament, for laying down proper regulations, and an improved plan, for the future encouragement and restoration of that valuable branch of business. As this has long been a favourite subject with me, I have not failed to seek for information where-ever there was a probability of finding it, either in reading, tradition, or the report of the present practice of our own and other countries; and as I look up-

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on it to be the duty of every good subject who thinks he can give a useful hint, to do it at this time; this, and this only, is my motive for writing the present Essay. I find it impossible, however, fully to express that diffidence which I feel upon the occasion; but, without making any formal apology, shall only observe, that I was at last overruled, with the hope, that if these hints are found useful, they may call forth the attention of persons of greater ability to do the subject more justice, by improving upon, and reducing them to practice: If it shall produce this happy effect, my ultimate aim will be attained.

By a number of paragraphs in the newspapers, I find the expectation of the public is much on tiptoe at present: just so I find it was about the year 1750, from that valuable pamphlet, intitled, *The Fisheries revived*, &c. (as lately republished by Lord Dundonald), and also ~~the~~ the Journal of a gentleman who was sent by government, in 1749, round Shetland and the west coast, to make observations. In these, fundry useful rules are laid down; proper fishing stations are pointed out; much sound argument and rational remarks are made; and a *scheme for carrying on the free British fishery recommended*: Since which, government has given more and greater bounties than perhaps ever were given by any other nation. After all, what has been done? The answer, in short, is,
Nothing

X *When the Shetland has given the practice of the Dutch both in God and Man's fishing, with their orders and regulations for catching and curing,*

Nothing to the purpose. In fact, this branch of business, that, in the hands of the *Dutch*, has been for ages a source of national riches and strength, and raised them, in a short period, to such a pinnacle of wealth and power, as not to find a parallel in the annals of the world; in *our* hands, with every advantage in our favour that nature could give, or can be required, has been, and still remains, (sorry am I to say it, but truth requires it), *a national disgrace*. I must therefore conclude, much as government may be disposed to do, never, ^{no} never will their efforts be found equal to the task of putting the fisheries upon a regular and permanent footing, unless their views and measures are properly seconded by the spirit of the people. Rouse then, my countrymen, from your fatal lethargy; regard the restoration of the fisheries as your truest interest; and be prevailed on to lend your helping hand, by entering into the spirit of the trade upon proper principles! Our forefathers well knew the value of this trade, which they prosecuted with ardour, much to their own and country's advantage, in ages we esteem much less enlightened than the present.

I must beg leave to give an extract from a book I have seen, intitled, *The interest of Scotland considered*; wherein the author says, "Formerly we
 " prosecuted the fishing trade for several ages with
 " great success, until the civil wars in the reign of
 " King Charles I.; when, as before observed,
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“ the wealthy inhabitants of *Fife* (by whom
 “ chiefly it was carried on) were ruined. If we
 “ intend to do it to purpose, we must still do it in
 “ the same way, by improving every natural ad-
 “ vantage of our situation. It was then managed
 “ by small busses, from fifteen to thirty tons bur-
 “ den, with close decks, and one mast that struck.
 “ Upon this mast one of their nets lay drying,
 “ while they rode by the other put out in head,
 “ to catch herrings for bait, when they were at
 “ the cod-fishing; and lay thus, snug in the wa-
 “ ter, very little exposed to the violence of the
 “ winds. In the beginning of March, these busses
 “ went to the northward, and fished cod on the
 “ coast of Orkney, &c. They salted the fish in
 “ their holds; and when the weather was dry,
 “ they put them ashore, and dried them on the
 “ beaches of Orkney. They returned in May to
 “ the frith, and washed out the salt from their
 “ mud-fish, and dried them on their beaches and
 “ stages at home, when they sold them partly for
 “ home consumpt, and partly for exportation.
 “ About the 8th or 10th of June they took in
 “ their large nets, salt, and casks, and set out to
 “ the fishing for herrings in deep water, in the
 “ same seas where the Dutch and we now take
 “ them. So soon as they had catched as many as
 “ their small holds could contain, or conveniently
 “ stow, beside their fishing-equipage and stores,
 “ they run to the coast and put these ashore, and
 “ took

“ took in a fresh fleet of nets, with more casks
 “ and salt, and fished on to the end of July; when
 “ they returned home, shifted their nets again,
 “ and fished across the opening of the frith so
 “ long as the fishing-season continued. Here they
 “ never failed to fish with success, and gave cer-
 “ tain intelligence to the open boats (wherein the
 “ same persons were sharers) where to lay their
 “ nets for herrings, close in with the shore, in
 “ shallow water. When this fishing was over,
 “ the same buffes, with a fresh fleet of nets, sailed
 “ to the northward, round the coast of Strathna-
 “ ver, to what we call the Lewis fishing, and
 “ there fished herrings in the deep-water lochs
 “ upon the west coast of Sutherland, Ross, and
 “ Inverness-shire, till towards Christmas, and then
 “ returned home, and laid up their buffes to be
 “ dressed and repaired; and those employed in
 “ them went to the fishing along the coast in open
 “ boats until the month of March, and were by
 “ this constant practice the most expert fishers in
 “ Europe.”

What a rational and proper system was this?
 One may boldly venture to assert, that we have
 only to revert to this old Scots one, to establish
 the most regular, extensive, and permanent fish-
 ery in the world. How unlike is our present
 practice to the old! and how much degenerate,
 notwithstanding the improvements of our ances-
 tors, and that of the Dutch, (who I have every
 reason

reason to think were their pupils), daily before our eyes! Indeed the history is painful to a feeling mind to relate, as it consists of almost one continued scene of bungling and blunder. I shall confine myself to one instance more immediately under my eye, of a small brig of sixty tons burden, belonging to Aberdeen, that has attended the Highland loch fishings these three last seasons, and in the most successful one never brought home above sixty barrels of herrings, and the last season, not a single bone. She draws a bounty of L. 90 Sterling; but this is far from compensating the outfit, besides tear and wear of the voyage; and, had the owners been poor men, must have occasioned their ruin, as is frequently the case. This is no singular instance; for I could adduce several such. When their mode of procedure, by fishing with small open boats only, is considered, it need not be wondered at. It is the constant practice to go to some one or other of the lochs, where they lie lounging in expectation of the fish coming to their hands, or trifling away their time shifting from loch to loch in quest of them, without daring to go boldly out to sea in search of the numerous shoals that surround the northern part of the island; which if they did, it is absolutely impossible but their labours would be crowned with success. Had the brig above condescended upon been equipped with what the Dutch call a *busse-roppe*, and the Yarmouth people a *horse-roppe*,
and

and proper buoys to float them by, (the whole expence of which would not have exceeded L. 30), and but one hand only, capable of instructing them in the proper manner of working them, I will affirm, she needed not to have gone ten leagues from her own port to have made, not only one, but perhaps several cargoes; yet the owners are gentlemen of the most respectable characters, and some of them are as much engaged in fishing-matters as most upon the eastern coast. This is mentioned from no motives of disrespect, but to shew the prevalence of bad practices, and how difficult it is for men of the best sense to deviate from the common jog-trot beaten path. At the time this vessel sailed for the Highlands, there was a Dutch buss fishing very successfully within sight of this town; and the herrings had been swarming upon the coast (as they do every season) in such amazing shoals, that, as our fishermen declare, they would at times think it absolutely impossible to get through them, until the plashing of their oars makes them dive about their boats, and this close in with the land, and not seldom into the very harbour; notwithstanding which, so infatuatedly ignorant are we in general of the matter, and so perversely obstinate in rejecting information, that ninety-nine of the hundred to whom this was told, laughed at the narrator, as if he had been relating an idle fiction, and endeavoured to turn every attempt

tempt that was made to awaken the attention of the neighbourhood to the subject, into ridicule.

In no much better situation is our cod-fishery than the herring-fishery, though it must be allowed our fishermen upon the east coast are very dextrous boat-fishers. The Dutch doggers have long wrought the *long line*, without so much as the assistance of a boat, which is expressly prohibited to them as well as their herring-busses; from them the English cod-smacks (who always fished with hand-lines till within these few years) learned the method, and outdo them; for, being permitted the use of a boat, they in calm weather, when there is not wind sufficient to work the vessel, with their boat under-run their lines, (as they express it); that is, take the fish off the hooks, bait them at same time, and down with the line again. The complement of these smacks and doggers are from seven to eight and nine hands, consisting of the master, mate, and one or two seamen, the rest apprentice-lads; while we, if a fishing adventure is intended, have no idea of any other method than boat-fishing only. For a small sloop, perhaps of forty or fifty tons burden, two fishing-boats must be bought, and two crews, of six men each, are engaged; and it is rare, if these do not require a few boys to catch bait in the sloop's boat forsooth; and not seldom a supercargo, beside the master: and thus a very small adventure is clogged with the maintenance and wages of from sixteen to
eighteen

eighteen hands, whereby the profits are destroyed. Thus, by our absurd management, both in the herring and cod fishery, the generality are perfectly disgusted, and imagine the trade untenible. When the business comes to be better understood, (which I hope it will soon be), I will promise, that a small sloop of thirty tons burden, properly equipped, with from seven to eight or nine hands, most of them apprentices, will do more business than most vessels that go upon the present plan, at much less than half the expence, and greater certainty of success; for she can keep the sea when boats dare not, and can fish with hand-lines when the weather will not permit working the long line.

The Peterhead people have been the most successful adventurers I have heard of, that have attempted the Highland cod-fishing from the east coast. To me it appears strange, that they should devote their whole attention to a distant fishery, with such very fine fishing ground just at their doors; the value of which, from the Buchan-ness, across the mouth of the Murray frith, and round the Orkneys and Shetland isles, is but little known. Were the quantity of fish properly ascertained, that are taken by small boats from two to three tons burden, from the Buchan-ness to Spey-mouth, partly sent to London in barrelled cod, and partly dried, and sold to the southward, and in the country, taken upon the skirts of this fish-

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ing ground, it would be found much more than can be well imagined; and yet so prolific is it, that I am persuaded, by a proper mode of fishing in small decked vessels, that could go out to and keep the sea, the quantity might be increased an hundred fold.

When the herrings set into the lochs, or close in with the land, no doubt much may be done with open boats; but how uncertain this is, fatal experience has convinced almost every adventurer. To evince which, I shall briefly relate the occurrences of two gentlemen here, who, with very laudable and persevering industry, established a fishery at *Staxago*, near *Wick* in *Caithness*, the only place upon the eastern coast where herrings are taken at present, excepting the mouth of the frith of Forth. For Mr Knox is misinformed, when he says there is a herring-fishery along this coast. This certainly was the case in former times; but no argument can prevail upon our fishermen at this day to try it, although their prospects are as flattering, at times, every season, as they can possibly be any where. These gentlemen, upon being informed by a person occasionally residing here, upon whose veracity they could depend, that herrings, in great abundance, were known to frequent the coast of *Caithness*, were induced to send down casks and salt, and engage boats to fish for them. This they did for several years, gradually encreasing the number of boats; and formed a
permanent

permanent establishment, erecting houses for making red herrings, &c.; and their example was followed by others. In the midst of their success, they were reminded of the precariousness of boat-fishing; the practice of the Dutch and Yarmouth people was held out to them; and, to convince them that this was the practice of our own countrymen when the trade was best understood, the book from which the foregoing extract is taken, *The Interest of Scotland*, was put into their hands. The advice, however, was rejected; and their error in doing so too soon appeared. They undoubtedly lost more money than would have purchased a proper vessel for their purpose: for in the season 1779, when they had nine boats engaged at a very heavy certain expence, their fishing produced only fifty-six barrels of herrings; and from that time to the last season, 1784, when the fish set in to the land again, not so much as a single barrel; although they had certain notice from coasting vessels, that every one of these seasons, the herrings were but a few miles off from the land, but too far for their small boats to venture in the rapid tide-way that runs there.

From this and many other similar failures I have heard of, I am perfectly convinced, that it is absolutely impossible that ever the herring-fishing by boats can be made a national staple branch, or a very profitable private one, as it certainly might be both, by a proper mode of fishing in the open

sea with decked vessels. I must therefore conclude, that were the people in the Highlands and islands to confine themselves to pay more attention to the fisheries most contiguous to their own habitations, for which their small boats may be well enough adapted, it would be found much more for their interest, than seeking after the more distant; the difficulties and hardships they undergo in doing which are so pathetically described by Mr Knox.

As all these shores are said to abound with fish of various kinds, particularly *cod*, *codlings*, *ling*, *tusk*, *skate*, *syths*, *haddocks*, &c. in their respective seasons, and as they are to be had in the lochs and close in with the land, much advantage might they derive from a vigorous prosecution of catching and properly curing them. I do by no means infer, that these boats should neglect the herring-fishery; for they certainly ought always to have their nets in trim against the usual season of their arrival; but I would not have them lose a single day of the other fishing, until they had the most certain notice of their being at hand: when, if they have a prospect of purchasers, it will be their interest to give that branch the preference. It will be said, where are they to find purchasers, unless they go to the general rendezvous where purchasers usually resort? These purchasers consist of people who attend the fishery in vessels loaded with casks and salt, who buy the fresh herrings,
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and pack them in their own casks. (If the bounty-vessels purchase herrings of the country-boats, it is contrary to law). What a precarious adventure it is, to send vessels upon this uncertain fishing, almost every season shows; and no small sum is annually lost to the nation in wages, tear and wear of these vessels, &c. In the present situation of things, the objection must be allowed to hold good; but I think it is possible to be obviated, and these vessels remain at home, or be otherwise employed, until a certainty of their procuring cargoes is ascertained: for I have every reason to suppose I could cure herrings as well in a clay-pit, or any other receptacle fit to retain a liquid, as in the best cask. I know that pilchards (a similar fish) are cured at Falmouth and that neighbourhood, in bings of many thousand barrels on the warehouse floors, and are only put into barrels immediately before shipping off; and I can see no reasonable objection why, in case of necessity, (which must frequently happen in the Highlands in good fishing seasons, for casks are an expensive and perishable article, and can only be kept in safety where the warehouses are large), herrings may not be cured in nearly the same manner.

I am told lime and stones are very plenty in the islands, and along the west coast. Were the public, or the proprietors along the coast, to erect cisterns either above or below the surface of the ground, and keep a proper stock of salt in them,

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at the most noted fishing stations, herrings in great quantities might not only be cured, but retained for any reasonable length of time in perfect safety, until vessels arrive with casks and a fresh supply of salt. An experiment to ascertain the practicability of this, may be made at a very trifling expence. If it answer, of which I cannot entertain a doubt, a little experience will lead to the properest method of constructing them. I apprehend it will be best not to have them large; or if erected large, they should have many partitions; for this reason, that after the fish have lain a sufficient time to pine, or thoroughly imbibe the salt, they ought to be shifted from one cistern to another, to separate the bloody pickle from them, that it may be boiled up and put about them again, with an additional quantity, completely to cover the fish; in which situation they will purify themselves, by throwing up the oil upon the surface, to be skimmed off; particularly if the cisterns are covered in with a shed-roof declining to the sun, the heat, in the summer fishing season, will be increased, and reverberate, so as to make the oil rise plentifully, in the separation of which, and the raw blood, consists the principal merit of Dutch curing; whereby the fish are rendered fitter to keep in any climate, particularly warm ones, where, for want of these precautions, they soon guild and spoil. In these cisterns, the fish of many different adventurers may be cured promiscuously, as they can be measured
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in by the crane or barrel, and accounted for at the general average of the whole produce, paying proportionally for salt expended, as well as for trouble, and at a reasonable rate for cistern-dues.

Were this practice fairly established round the coast, it would be found, in my humble opinion, a far more effectual method to make the Dutch and other nations drop the trade, than by insultingly driving them to a distance, as many seem to expect and wish for; because, if we follow out the business with that spirit the subject deserves, in decked vessels, we may have it in our power to undersell almost all others.

The contents of a cistern fourteen feet square by one deep, is nearly forty barrels; consequently six feet deep, above 230 barrels. Should the quantity taken in any one season so far exceed the consumpt, as endanger the reduction of the price under a reasonable rate, and policy dictate imitating the example of the Dutch in prohibiting the exportation of herrings a year old, by this method there would be no waste of casks, and little of salt; for, perhaps, the pickle will be found to increase in value the oftener it is boiled up; and a considerable part of the salt imbibed into the herrings may be recovered, by bruising and steeping them in salt water; and I have great reason to think, the quantity of oil that would be procured might go a great way in defraying the expence of catching and curing; for the Swedes have for several

ral years past caught herrings, when they were plenty upon the coast, for the express purpose of boiling them to extract oil, although they have not succeeded in making pure oil. A friend of mine was tempted, some years ago, by the lowness of the price, to order some barrels of it, before he saw it. I told him he would find it unfit for sale, (for I had heard of it); and he found it so. I do not mean to infer from this, that very pure oil may not be extracted in great quantities from herrings, by boiling them. The failure of the Swedes, I am persuaded, proceeds from the quantity of viscid matter produced by boiling the whole fish, without being at pains to separate that properly from the oil, by pouring it upon, and washing it in water, when this viscid matter would dissolve, and leave the oil pure upon the surface: For I apprehend, that were the whole parts of a whale boiled in water, and what floated upon the surface scummed off, it would be found what Swedish herring-oil is, or nearly so. This viscid matter, that is the bane of Swedish herring-oil, might be turned to valuable purposes, when properly separated from the oil. It is the property of all animal substances, to yield this matter more or less, and fish in a high degree.

In a small experiment I tried some years ago, I made a very strong glue from the head and intestines of a cod, from which I am led to think, that if ever our fisheries are carried to that extent
they

they are capable of, their very offals may be turned to account; as from the *finer* kind of fish, with proper attention and care, *isinglass* may be made; and from the *coarser*, such as dogfish, sunfish, porpuses, &c. a strong glue, useful for joiners, woollen-weavers, painters, &c. &c.

In the climate of the Hebrides and Shetland, so adverse to the culture of grain, and by the hand of Providence so abundantly compensated with such variety of the most valuable species of fish, (if they knew the proper value of them), that fishing is, and certainly ought to be esteemed their proper harvest; how useful would these cisterns be, with a proper supply of fish in them? they could never so severely feel the failure of their at best but scanty crops, that frequently happens. Habit has inured them to live upon a very small proportion of oat-meal, to what is used in other parts of the country, and mostly made into *brochan* or water-gruel. What an agreeable relish would a well-cured herring make to this slop, if eat along with it, as the Norwegians do along with their broth and soups! How simple an affair would it be, for each island, parish, or even family, to have one for their particular use, proportioned to their numbers?

It is the prevailing opinion, that herrings cannot be well cured, unless gutted and barrelled immediately when taken. I must beg leave to differ, if they get salt directly, and I will give my

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reason.

reason. I have talked over the matter with sundry old and experienced Yarmouth fishers, whose constant practice is to salt their fish in bulk in their holds, for making into red herrings, without gutting them ; and although they will frequently have them on board from one to two and three weeks or more, and that without preserving the pickle about them, every drop of which is pumped out, they will deliver them on shore perfectly sound and in good condition, though no doubt at a considerable waste of salt ; were they not so, I suspect the moderate degree of heat at first applied to them, would increase, rather than check putrefaction. This leads me to think, that they may be cured in bulk, on board ships, with perfect safety, particularly if the ceiling and partitions of the apartments appropriated for holding them, is caulked tight, which is very practicable ; and whereby the bloody pickle would be preserved, and no salt wasted. If this opinion is formed with judgement, it would certainly be a great saving of trouble, to delay doing that on board, which could be done much more conveniently on shore.

It is impossible to say, the quantity of herrings that might be landed by a vessel properly equipped for fishing upon our coasts through the season. I have reason to think it would be, at times, at the rate of several cargoes a-week. An experiment to ascertain this would cost but little ; and it certainly would be well bestowed, if it is found to answer.

answer. An investigation of the merit of bloody pickle, which the Dutch so carefully preserve, will show it to be a glutinous substance, with which nature supplies herrings in water, and which it appears experience has found useful to preserve them from the action of air. Lord Dundonald, whose labours I admire, (particularly his method of refining salt, which I hope will not be neglected and lost), has given a method for increasing this matter in the pickle, by bruising and mixing therein a certain proportion of the milt: With humble deference, I will propose another, and that is, to boil a proportion of the gills and guts, or a few of the smallest or damaged herrings, and mix the liquor with the pickle, after being strained through a hair or woollen cloth. This, I am certain, will give all that boiled blood and slime can be supposed to yield.

I have long thought the practice of curing herrings in smoke, *red herrings*, as they are called, might be improved upon. I know the method originated with the Norwegians, perhaps from necessity. It is undoubtedly a very slovenly one, although implicitly followed at Yarmouth and elsewhere. I do not apprehend they can derive any very salutary advantage from smoke, farther than being dry, and less salt than when pickled; on the contrary, it is known that smoke-cured meat of any kind is found hurtful to many constitutions; notwithstanding which, herrings cured in this manner always sell higher, and find a rea-

dier vend, at most markets, than the pickled kind : wherefore I would beg leave to recommend making an experiment, of curing them sweet salted, or *rouzed*, as they call it, and dried in houses heated with a stove and flue, without smoke. I am convinced this would be a less expensive method than reddening, which requires a fire of wood, as any feuël will serve ; and I cannot help thinking the fish would be found more palatable, by retaining their native colour and flavour.

The Norwegians are, it appears, most industrious fishers ; they not only established and taught (as above observed) the making of red herrings, but have for ages practised, and still retain, the stock-fish trade ; and we, as well as all the other European powers, particularly the maritime ones, purchase great quantities for sea-service, where, in long voyages, they are found very useful for a fresh meal. From an experiment I made some years since, I have reason to think the making of them is by far the shortest, simplest, and cheapest method of curing fish ; as it consists of no more than gutting, washing, and hanging up to dry, in houses heated with a stove, just such as is recommended for drying herrings without smoke. They may be dried in a very short space, according to the degree of heat applied, to be regulated by experience, as a very quick or more deliberate degree of heat is found to suit best.

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The introduction of these stoves into the Highlands and isles cannot fail to be of vast importance, where, for want of sunshine and dry air, much fish is annually hurt in curing, and in some instances are rotten and lost. In these, fish may be cured for any market, as they may be made into stock-fish without any salt, or made into the common split kind, with much less salt than is commonly used, dried thoroughly hard, perfectly clean and transparent, and that through the whole winter, when cod, codlings, fyths, haddocks, &c. are in good case. At present few codlings, and no haddocks or feiths, are taken, but for home consumption, and almost immediate use; although the Norwegians sell vast quantities of all these, made into small stock-fish, through Germany, and all the ports of the Baltic, under the denomination of *dorek*. I have seen and eat of them in Aberdeen, and am told the current price in Norway, that poor country, is from three shillings to three shillings and sixpence the weigh of thirty-six pounds, or about a penny Sterling per lb. Of that kind I know many tuns might annually be made round the shores of the Moray frith only; in many places of which, purchasers would be courted to take them at the rate of fourteen for a penny. These, when dry, will weigh from four ounces to several pounds weight each; from which it is obvious what great advantage might be derived from that branch, even if a more liberal price were given for
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wet fish. In fact, the advantages of these stoves, if fairly introduced and put in practice, are manifold and great, as every species of commonly eatable fish may be dried in them for some market or other.

At the fishing towns, and intended fishing stations, where a resort of fish and fishers may be expected, they should be constructed upon a large scale, similar to the Yarmouth red-herring houses, divided into separate apartments, and furnished with both fixed and moveable laths of wood, from the top to nearly the bottom, for suspending the fish upon, with a cast-metal stove in each apartment, from which the smoke must be carried off by a flue, either running perpendicular, or carried round the rooms, which, by prolonging the circulation, would increase the heat. In these the fish of many different adventurers may also be dried at the same time, at a very moderate charge, every person giving his fish a particular mark, either by a peculiar notch, or thread of any colour tied to them. The erection of these large stoves will no doubt be attended with expence; but they may be constructed upon so simple and small a scale, that every boat's crew, who can afford to build a small hut, and purchase a small metal stove, or even a cast-metal plate of three feet square, may have one for their own accommodation, and cure their fish in them upon ropes of
 hemp,

hempe, hair, bent, or heath, stretched across, as effectually as in the most expensive ones.

Cod-fishing vessels that have wells, can easily preserve their small fish for bait fresh and alive, which those that have not cannot do; the want of which is very much felt in some parts of the Highlands at particular seasons, where small fish is ill to be got, and soon spoil for want of a little contrivance. I think a frame of good strong hoop-sticks, or little better, in the shape of a small boat, with a piece of coarse thin cloth laid over it, would answer the purpose perfectly well; it would retain the fish, and, by admitting a free circulation of water, would preserve them alive till wanted. These may be towed astern, or along side, by means of a projecting boom from the lee-side, as may be found most convenient to circumstances and the working of the vessel. They may be constructed larger or smaller, so as to be put together or taken down in a few minutes, and will be so light, that a single man may take them on board, when the severity of the weather, or other circumstances, may require it. Should the light frame be found not sufficiently buoyant, a few pieces of cork might be laid in the inside of the cloth, to make them float lighter. Indeed, could fishers be prevailed upon to do as their forefathers did, and use small nets for catching bait, I apprehend they would find their account in it, as a few straggling herrings are to be found, at all seasons, in the north sea; and

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no bait answers better than them. As the hardest and most rocky ground is always esteemed the best fishing ground, I think it cannot miss, that in using the long line, as the whole hooks lie at the bottom, many of them must lie at the side of stones, and in hollows, where it is impossible for a fish to get a fair bite, whereby the chance of success is lost; and as, in fishing with the hand-line, it is a rule, never to let the hook touch the bottom, though a few inches only distant from it, and the more it is kept in motion, the better; I have thought, that if the hooks upon the long line could be prevented from touching the bottom also, it would be an improvement. And that it is practicable to do so, I cannot help entertaining a hope. Suppose a small bit of light wood or cork is fixed upon the snood, a few inches distant from the end of the hook, just sufficiently light to prevent the hook and bait from going to the bottom, but not to raise the line from it; the agitation of the water, either from the action of wind or current of tide, will keep the suspended hook in a continued vibrating motion, and thereby not only make an excellent decoy, similar to the motion of the hand in the hand-line, but give every chance for a fair and sure bite.

Indeed, were fishing matters more attended to, and men of genius applying to it, it is impossible to say to what length improvements may be carried. Mr George Tower here has a net by him
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that closes at the ends when shot in a circular manner, and draws at the bottom like a purse, which, if made large enough, and used where herrings are plenty, may be supposed to inclose a whole cargo at a single haul. And I have had by me nearly these seven years, the model of a net of my own invention, by which, if put in use where the shoals are thick, I am persuaded it would be practicable to make cargoes as fast as they could be taken on board and cured. By repeatedly revolving in my mind the manner of constructing it, I have simplified it so, that it may be made, with its few apparatus, from two to three guineas, according to the size. It will be so portable, that a boy may carry it, and occupy very little room; and it will be so easily wrought, that, although capacious enough to contain from twenty to fifty, or even a hundred barrels at one haul, two or three men may work it, either in ship or boat, and that so quickly, that from five to ten minutes will be sufficient time to the haul from any reasonable depth that herrings are usually taken in. It goes down into the water in very little room, suspended by one rope, and when hauled upon by another, comes up, occupying a considerable space, from three to twelve or fourteen feet square. Upon a successful haul, it is to be suspended alongside, the edge of the net just above the surface of the water, where the fish are retained alive, as in a well, until taken on board by means of a bucket of net-work, with a long handle, similar to a shrimp-

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net, and this repeated (for it is workable in any weather that is not very tempestuous) until the cargo is completed. This net may be useful for other purposes beside herring-fishing. The dog-fishery is very valuable, on account of their livers, which produce much oil. They are a voracious fearless fish, and may, by means of bait suspended over the mouth of the net, be amused until brought to the surface in great quantities. I have seen salmon and trout taken by means of a light, in the night-time, upon which they run, until struck with a spear. If this net be let down, and a light held out immediately above it, I must suppose fish of various kinds may be decoyed, until brought to the surface and taken.

Although the Dutch, who have a long voyage to the fishing station, use large expensive vessels, perhaps smaller ones may be found suitable enough to our purpose, who are situated so near to the fishing-ground, particularly if herrings can be safely cured in bulk. It must be of moment to any country, particularly a poor one, to have matters conducted upon the least possible original outfit-expende. Of all the vessels I have seen, the rigging of a Flemish fishing-boat seems the simplest, cheapest, and at same time must be extremely well calculated for fishing. These are about thirty tons burden, close decked, and consist of one proper mast, upon which a pretty large lug-sail is set, and in easy weather a top sail above it, with a short spar in the bow as a fore-mast, upon which a
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small lug fore-sail is set. Instead of expensive shrouds to resist the labouring jerks of a weighty boom, nothing is needed but a simple tackle on each side, standing pretty much aft, with a stay and main halyard, which compose their whole rigging. I am told they lie as close to the wind as any cutter, consequently sail fast, and labour little in a hollow sea; for there is no bolt-sprit, and the sails are wholly within board. The only objection I have heard to them, is the loss of time in shifting the lug to windward in turning, on which account they are said to be less handy than a sloop or smack in turning through a narrow fair-way. Upon seeing one of them last summer in our harbour, I could not help being struck with her simplicity of rigging, and my fancy went to work in trying to obviate this one objection. If it is possible to do in large what I have done in a small model, I have accomplished my aim, and am pretty confident the lug may be shifted in the common time requisite to put the vessel about, without lowering the yard a foot.

I know not what system is like to be adopted by the gentlemen so laudably employed in the interest of this valuable business; perhaps it would be prudent not to be too precipitate, until full information is obtained upon a subject so little understood, or at least to leave it open, that, as information occurs, it may be occasionally introduced, until the plan is complete, which must be a work of time. If government can be prevailed

upon to adopt Dr Anderson's and Mr Knox's ideas, and erect the villages or towns recommended, along the Highland coast, it could not fail to be of great importance to the inhabitants there, as well as every adventurer in the fishing way that may frequent that coast. It is to be hoped the present bounty will be continued, and every customhouse will be allowed to admit vessels properly equipped for fishing, upon the bounty, without subjecting them to the necessity of going to distant ports to rendezvous. The oppressive fees exacted from bounty-vessels by the customhouse-officers, and the troublesome affair of transacting salt-bonds, are matters so loudly complained of, and so severely felt, that it must be supposed they will be taken into serious consideration, and prevented in future. The absurd prohibition of using hand-lines for catching cod, should not only be done away, but a premium given for the greatest quantity taken by the crews, when not otherwise employed; and all herrings, either exported, or sold for home-consumpt, ought to be properly cured. This is a measure which will be objected to by interested individuals as expensive; but it must be enforced, before we can pretend to competition in foreign markets, or make an extensive home-consumpt. At present their appearance is nauseating. Perhaps it would be proper not to leave future adventurers upon the bounty so much in their own option in the manner of using their nets; and that the buss or horse-
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rope, and proper buoys for floating a fleet of nets by, should be expressly stipulated as articles in the equipment, wherewith they can use them in the open sea; but unfortunately, if this is all at once rigidly enforced, we are perfectly ignorant of this mode of fishing. True, it must be simple, and might be easily acquired by men of sense, acquainted with boat-fishing. We may suppose a few hands might soon train a fleet, by exercising the crews in shooting and hauling the nets in day-light, a few days. But this would be rather precarious and troublesome; and yet, as it is a measure that must absolutely be adopted before the fishery can be put upon any thing like a proper footing, men for instructors we must have, either from Yarmouth or Holland. I must conclude, as essential a service as government can do, would be to invite home, by encouragement, many hundred British seamen, that are always employed in the Dutch fishery, where they must have acquired knowledge that would be highly useful to us in our present situation. The want of such men is so severely felt at present, that, as far as I can learn, along all the northern coast of Scotland, although we have many good and hardy seamen, yet not one of them is capable of conducting the fishing, either of cod or herring, upon the true principles on which it ought to be done; and to that solely must be attributed the present deplorable situation of our fisheries. It is such, that he is a
hardy

hardy man indeed that dares to recommend a fishing adventure. Should he be actuated by principles of the utmost possible purity, and were his plans ever so well digested and rational, until men are either procured, or bred by perseverance, capable to put these in execution, success is very precarious, and almost in vain to be looked for; and on the want of it the certainty of reflections and ridicule is sufficient to deter others from subjecting themselves to the same lash.

I have reason to think there is much fine fishing-ground to the north and west of the *Lewis* and *Harris*, round the islands of *St Kilda*, &c. I have heard of becalmed vessels taking vast quantities of fine cod with the hand-line there; and of an Irish wherry (which works the long-line with the vessel in the manner of the Dutch) having, in a short while, in summer 1782, taken what made two cargoes of dry fish, upon ground where the inhabitants there had never taken a single fish: Wherefore I would beg leave to recommend, that government cause explore all the fishing-banks round the north part of the island, and get a new set of charts (with these marked upon them) made, and sold to the public upon easy terms.

Were it possible to form a PUBLIC COMPANY, that could be conducted upon truly patriotic principles, not vested with exclusive privileges obstructive of the operations of private adventurers, but, on the contrary, having extensive funds to lay in

a proper stock of salt and casks, as well as other fishing materials, at sundry stations, from whence they could be supplied upon liberal principles, and reasonable terms, either for money, or in barter for well-cured fish, or properly-made oil, they might be highly useful, at least for a few years, until the business is better understood. Their service, by admitting seamen properly recommended for diligence and honesty, might form a kind of school, from whence the private adventurer could be furnished with men worthy of being intrusted with the execution of his plans; and if they supported an extensive correspondence with the European and West-Indian markets, and readily communicated their information, it would be of great importance to every one engaged in the trade, to be regularly informed of the quantity and quality suitable for these markets.

My subject has led me to say more than I intended when I began, although I could say much more. I will conclude for the present, with observing, that unless a better system of fishing is adopted, it is a doubtful point with me, if it were not for the interest of the nation to drop the business, except for home use. Were the value of fish exported for these twenty years back properly ascertained, and counterbalanced with the outfit of all adventures, in wear and tear of ships and boats, wages and victuals, with bounty added, I am convinced it be would found far to outweigh the other.

I will therefore beg leave to ask, whether these men, who have been bungling at the business, without aiming at improvement to fish in the manner of the Dutch and Yarmouth people, have been the friends of their country or not? I will again repeat what I think I am warranted to say, that our ancestors understood and prosecuted the fishing upon true principles, at a very distant and early period. Mr Loch says, the tradition of the country at Dunbar reports, that persons went from thence to teach the Yarmouth people the making of red herrings, which had been much prosecuted on both sides of the frith. Perhaps these people were carried there at the time Edward I. over-ran this country; and we were induced, either from want of a sufficient quantity of proper fire-wood for making red-herrings, or rather from the application of reason and common sense, to make barrellled herrings, for several ages before the reign of King Charles I. and before I can hear of their being made by any other nation.

I have two Swedish memorials by me, wrote in 1746 and 1747, with the intent (which they effectually had) of rousing the attention of the Swedes to this business; from which I will beg leave to subjoin a note, that will show to what good purpose foreigners have used the neglected writings of our own countrymen, and what value the Swedes put upon the privilege of fishing in
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our seas*. This author traces and attributes the decline of Norwegian red-herring trade, to the Dutch having learnt, about two hundred years before the time he wrote, from an Englishman named

* Not above two hundred years ago, the Dutch learnt of an Englishman, named William Belkinson, the manner of dressing, salting, and barrelling herrings: He at same time taught them how to take and salt cod upon the sea-coast; and this art laid the foundation of the wealth and power of that republic. Sir Walter Raleigh, after having been at great pains to learn the true strength the Dutch acquired by this advantageous trade, assured James I. King of England, that they fished upon the coast of Great Britain with at least 3000 vessels, and 50,000 men, exclusive of the vessels which they fitted out and employed yearly in exporting their herrings to other countries, which, according to him, amounted at least to 9000 vessels, containing 150,000. He added, that 20 busses for herrings were sufficient for the maintenance of 8000 souls, comprehending women and children; and that the Dutch, at a moderate computation, had annually 20,000 vessels at sea, for the sole article of fishing, in its different branches.

Mr d'Aibzema, resident from the Hans Towns at the Hague, and Historiographer of the United Provinces, as well as the celebrated Du Moulin, (*Commentarius de lege mercatoria*), certify, that in their time the Dutch drew from the sea yearly 300,000 tuns of herrings and other fish. This Dutch fishery, which may be termed the great gold mine of that nation, was at least tripled from the reign of James I. of England to that of Charles II. Dr Benjamin Worsely, who, under this last, acted as Secretary of State for the department of Trade and Plantations,

med William Belkinson, the manner of catching, salting, and barrelling herrings; who also taught them the manner of catching and curing cod-fish. Now, as it is notorious the Scots were masters of the

was sent to Holland about the 1667, to inform himself exactly of the fishery which the Dutch carried on in the North Sea; and at his return, made a report to the King, in which he assures him, that at the lowest valuation, the herring fishery of the Dutch amounted yearly to three millions Sterling. The reality of this estimate he demonstrated, first, by the number of busses, which then amounted to at least 1600; 2dly, by the quantity of fish taken by each vessel; 3dly, by the customhouse books of Holland, Zealand, and Friezland; 4thly, by the price of fish fixed in every place to which they were sent by the Dutch. He pretended, that the value of herring and cod yearly taken by the Dutch, greatly exceeded the produce of the manufactures either of France or England, and even amounted to a much larger sum than that which Spain draws from America in time of peace. He observed, that Holland had at all times regarded the fishery in the North Sea as the basis of its wealth and power; and with this view had successively published above thirty excellent regulations, for encouraging their subjects to prosecute this business with ardour, and put it upon a stable footing, that should be advantageous to those concerned in it. He demonstrated, by a fair and just calculation, that L. 10,000 Sterling employed in the herring fishing, maintained more people than L. 50,000 Sterling in any other branch of commerce; that one buss bred at least ten sailors, consequently 1600 furnished a great number annually. And, finally, he observed, that the most famous Dutch Admirals, and their bravest sea-

the business at this period, and I cannot learn it was so in England, I may conclude this man who taught the Dutch has been from Scotland, probably of the name of Wilkinson. Whether this conjecture

sea-officers, had been at first no other than fishermen. The illustrious Mr De Witt, Grand Pensionary of Holland, published, in the year 1662, his excellent work of the Fundamental Maxims of the Republic of Holland; and that great politician, in calculating the number of people, which at that time amounted to 2,400,000 souls, and speaking of the means by which they were subsisted, adds, that 750,000 lived by the fishery alone, in which a great many acquired immense riches. Have we not reason then to call this fishery a real gold mine? It is certainly to them the basis of a vast navigation and trade, that extends over the whole habitable globe.

The author then enumerates the different markets where the Dutch sell their fish, either for money or in barter, with a variety of other arguments and useful information, holding out their industry to his countrymen as an example worthy of their imitation, (as every British subject who writes upon the matter ought to do to his). He says, the Norwegians taught the English the method of making red herrings, which is now very much practised at Yarmouth, from whence many ship-loads are annually exported to the Mediterranean: indeed, it is the chief trade of that town, which, by this branch, is become much larger than Gottenburg. Charles Gustavus, one of our greatest Kings, resolved in good earnest to share in this gold mine of the Dutch. In the alliance which, in 1656, he made with England during Cromwell's usurpation, there was stipulated a very advantageous article for Sweden, touching the liberty of fishing

jecture is well founded or not, is of little moment at this day; it would be of infinitely more, could we be prevailed upon to imitate their industry, and by a vigorous exertion to make a better use of our future time. That we may do so, is the fervent wish of a

CALEDONIAN FISHER.

ABERDEEN,
December 1784.

on the coast of England. Now, as we have had no open war with that kingdom since that time, the alliance ought still to be in full vigour. These are the very words of the tenth article:

“The subjects of his Swedish Majesty shall be at full liberty to fish upon the coasts and seas depending upon the republic, for herrings and other fish, provided the number of their busses shall not exceed 1000. During their fishing, they shall not be molested in any manner, either by the ships of war or privateers belonging to the republic; nor shall any tax or toll be exacted from those who shall fish upon the northern coast of England, but they shall have free liberty to buy necessary provisions from the inhabitants of those places.”

Have we not reason to ask Sweden, What she has been thinking of for almost a whole century, that she has not profited by such a considerable advantage which that great King procured for his country?

And have not I infinitely greater reason to ask British subjects, What they have been thinking about, in so long neglecting a treasure that almost every other nation prizes so much?

SUP.

S U P P L E M E N T.

THE late Smuggling Act merits some consideration. By it no clinker-bottomed vessels must be built, nor any rigged with lugfails: Now, it is notorious, that clinker bottoms make the best sailing ones. It must be allowed they are not so durable as carvel work; but they can be built cheaper; and for the west-coast fishing, where they will be mostly afloat, they will answer well. The Yarmouth herring-fishers, (who are by far the best and most industrious in that line in our island), have always rigged their fishing vessels with lugfails, which they find so peculiarly well adapted to the business, that many of the largest of them, that are occasionally employed in the coasting trade as sloops and shallops, when the herring-season commences, alter that rig, and never fish but with lugfails. As this is an incontestible fact, and as all our open fishing boats are rigged in that manner, I must conclude that it is best, and it certainly is the simplest and cheapest. Will it not therefore be found reasonable to allow all vessels that are *bona fide* equipped for the express purpose of fishing, to be rigged in the manner

manner experience has found most convenient? And will not this prohibitory law prove prejudicial to the interest of the fishery, by being found extremely oppressive to many industrious individuals concerned in them?

No person can hold the principles of smuggling in more detestation than the author of this, or can more rejoice at every judicious measure that has or can be devised for its suppression, and is only sorry the framers of this act could not think of some other method for the disposal of vessels taken in that trade than breaking them up. If this law is rigidly enforced, I must conclude, that there will be, in the course of a few months, upwards of L. 100,000 value of shipping destroyed at the sundry ports round the island, and lost to the nation, without gaining one earthly real advantage. The thought of such a deliberate and wanton waste of valuable property, cannot fail to be extremely distressing to feeling minds. If the prices of smuggling articles shall continue so high as tempt the smuggler to persevere; and if he cannot procure British vessels, he will be at no loss to procure foreign ones; for which, if they are also destroyed, he, or people connected with him, (British subjects), must pay; and thus, no inconsiderable proportion of ship-building, at our expence, will be thrown into the hands of foreigners. The law also serves as a very severe check upon
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the industry of the revenue-officers, as it lessens the value of their prizes so much as hardly makes them worth the trouble of seizing. The best apology I can make for the framers of the law is, that too much sympathy prevailed at customhouse sales, whereby the former owners readily recovered them, at a very moderate appretiate value, and they were returned to their former employ; for no bail was required that they should be employed in the fair trade, which was certainly wrong.

If government is serious in their intention of giving effectual aid to the restoration of the fisheries, the whole of these vessels, instead of being destroyed, might be usefully employed. They are in general constructed for fast sailing, and consequently very well calculated for fishing. Were they sold to people of integrity, under proper bond and penalty, at the usually low valuation, to be employed in fishing, it might serve as a very great temptation to people to adventure in that line, that perhaps would not otherwise think of it; and thus a double advantage would be obtained, without any private loss or public expence. Sorry am I to say it, that, notwithstanding the example of our forefathers,—that of our more industrious neighbours daily at our doors,—and the well-meant endeavours of fundry valuable performances, (particularly those of Dr Anderson and Mr Knox), recommending the prosecution of this business, such

a listless indifference prevails, as occasions the necessity of this and other advantages to be held out as a *stimulus* to people to do what, if done with judgement, could not fail to promote private emolument and public good.

F I N I S.